

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method for managing a plurality of multifunction network devices on a network, each multifunction network device having a network interface for communication on the network, each multifunction network device further having ~~an image processing apparatus with~~ scanning and printing capabilities controlled by function modules, and each multifunction network device further having a plurality of hardware resources including a storage memory for storing a plurality of function modules which ~~include~~ includes the function modules for controlling the ~~image processing apparatus~~ scanning and printing capabilities, a program memory for use by the function modules, and a processor for executing ~~each of~~ the function modules, said method comprising the steps of:

execution of the plurality of function modules by the multifunction network devices using the hardware resources so as to control the scanning and printing capabilities;

detecting a reconfiguration event for one of the plurality of multifunction network devices, wherein the reconfiguration event is triggered ~~internally of said one multifunction device~~ by an increase or a decrease in demand for hardware resources of said one multifunction network device, and ~~wherein said reconfiguration event is detected over the network;~~

sending a first reconfiguration command including a deletion command to delete at least one function module from said one multifunction device, wherein the first

reconfiguration command including the deletion command is sent over the network from an information processing apparatus on the network to said one ~~of the plurality of~~ multifunction network ~~devices~~ device corresponding to the reconfiguration event in case that the reconfiguration event is detected in the detecting step in response to the increase of demand for the hardware resources, and sending a second reconfiguration command including a retrieval command to retrieve a deleted function module by sending the deleted function module from the information processing apparatus to ~~the~~ said one multifunction network device via the network, wherein the second reconfiguration command including the retrieval command is sent over the network to said one ~~of the plurality of~~ multifunction network ~~devices~~ device corresponding to the reconfiguration event in case that the reconfiguration event is detected in the detecting step in response to the decrease of the demand for the hardware resources;

first reconfiguring ~~the~~ said one multifunction network ~~devices~~ device by deleting the function module in said one ~~of the plurality of~~ multifunction network ~~devices~~ in accordance with the first reconfiguration command and sending the function module to the information processing apparatus via the network; and

second reconfiguring said one ~~of the plurality of~~ multifunction network ~~devices~~ device by retrieving the deleted function module in the first reconfiguring step from the information processing apparatus on the network in accordance with the second reconfiguration command, and executing the retrieved function module by said one multifunction network device so as to control a scanning or printing capability using the hardware resources.

2. (Original) A method according to Claim 1, wherein the reconfiguration event is a request for execution of one of the plurality of function modules by the one multifunction network device.

3. (Original) A method according to Claim 1, wherein the reconfiguration event is a trigger set by a configuration module executing in a computing device on the network.

4. (Original) A method according to Claim 3, wherein the trigger is set in response to a detection by the configuration module of an increased demand for use of the storage memory and of the program memory in the one multifunction network device.

5. (Original) A method according to Claim 4, wherein the detection by the configuration module of an increased demand for use of the storage memory and of the program memory is based on resource information data which is passed from the one multifunction network device to the configuration module.

6. (Original) A method according to Claim 5, wherein the resource information data includes a current utilized amount of the storage memory and a current utilized amount of the program memory of the one multifunction network device.

7. (Original) A method according to Claim 5, wherein the resource information data is passed in an SNMP message from the one multifunction network device to the configuration module.

8. (Original) A method according to Claim 3, wherein the trigger is set by the configuration module based on receipt of a request message by the configuration module from the one multifunction network device.

9. (Original) A method according to Claim 8, wherein the request message comprises a request by the one multifunction network device for an increased useable capacity of the storage memory and of the program memory in the one multifunction network device.

10. (Original) A method according to Claim 8, wherein the request message is passed in an SNMP message from the one multifunction network device to the configuration module.

11. (Original) A method according to Claim 3, wherein the configuration module monitors an overall demand for execution of each of the plurality of functions by the plurality of multifunction network devices, and wherein the trigger is set by the configuration module based on a detected increase in the overall demand for execution of one of the plurality of functions.

12. (Original) A method according to Claim 11, wherein the configuration module monitors the overall demand for execution of each of the plurality of functions by monitoring a plurality of function request messages which are sent to the plurality of multifunction network devices.

13. (Original) A method according to Claim 1, wherein the one multifunction network device is reconfigured in accordance with the reconfiguration command by deleting at least one of the function modules from the storage memory.

14. (Original) A method according to Claim 1, wherein the one multifunction network device is reconfigured in accordance with the reconfiguration command by deleting all of the function modules except one designated function module from the storage memory.

15. (Original) A method according to Claim 1, wherein the one multifunction network device is reconfigured in accordance with the reconfiguration command by reallocating a designated amount of the program memory for use by each of the function modules.

16. (Original) A method according to Claim 1, wherein the one multifunction network device is reconfigured in accordance with the reconfiguration command by instructing an operating system in the one multifunction network device to

respond only to a function request message which requests execution of a designated function module.

17. (Original) A method according to Claim 1, wherein in the sending step the reconfiguration command can further be selected from an addition command to add a designated function module to the storage memory and the program memory of the one multifunction network device.

18. (Original) A method according to Claim 17, wherein the reconfiguration event is a trigger set by a configuration module executing in a server on the network, and the trigger is based on a detection by the configuration module that the one multifunction device has a decreased demand for use of the storage memory and of the program memory.

19. (Original) A method according to Claim 18, wherein the detection by the configuration module of an decreased demand for use of the storage memory and of the program memory is based on resource information data which is passed from the one multifunction network device to the configuration module.

20. (Original) A method according to Claim 19, wherein the resource information data includes a current utilized amount of the storage memory and a current utilized amount of the program memory of the one multifunction network device.

21. (Original) A method according to Claim 19, wherein the resource information data is passed in an SNMP message from the one multifunction network device to the configuration module.

22. (Original) A method according to Claim 17, wherein the reconfiguration event is a trigger set by a configuration module executing in a server on the network, and the trigger is based on an expiration of a predetermined time duration which was initiated at a last reconfiguration event for the one multifunction device.

23. (Original) A method according to Claim 17, wherein the reconfiguration event is a trigger set by a configuration module executing in a server on the network, and the trigger is based on receipt of a request message by the configuration module from the one multifunction network device.

24. (Original) A method according to Claim 23, wherein the request message comprises a request by the one multifunction network device for the addition of at least one function module to the storage memory and to the program memory in the one multifunction network device.

25. (Original) A method according to Claim 17, wherein the reconfiguration event is a trigger set by a configuration module executing in a server on the

network, and the trigger is based on discovery by the configuration module of the one multifunction network device on the network.

26. (Original) A method according to Claim 25, wherein the one multifunction network device is discovered by detection of an SNMP announcement message sent over the network by the one multifunction network device.

27. (Original) A method according to Claim 17, wherein, in the case that the reconfiguration command is an addition command to add a designated function module to the storage memory and the program memory of the one multifunction network device, the designated function module is downloaded to the one multifunction network device.

28. (Original) A method according to Claim 27, wherein the designated function module is downloaded to the one multifunction network device from a component repository module in response to an instruction from a configuration module.

29. (Original) A method according to Claim 28, wherein the component repository module and the configuration module are executing on a same computing device on the network.



30. (Original) A method according to Claim 28, wherein the component repository module and the configuration module are executing on a separate respective computing devices on the network.

31. (Original) A method according to Claim 28, wherein the component repository module executes on a server on the network.

32. (Original) A method according to Claim 28, wherein a version identification of the designated function module is provided in the instruction from the configuration module to the component repository module.

33. (Original) A method according to Claim 32, wherein the version identification is determined in accordance with a preset profile corresponding to the one multifunction network device.

34. (Original) A method according to Claim 33, wherein the preset profile corresponding to the one multifunction network device contains information regarding allowed function modules that can be downloaded to the one multifunction network device and a version identification for each of the allowed function modules.

35. (Original) A method according to Claim 27, wherein the designated function module is downloaded to the one multifunction network device from a component repository module in response to an instruction from the one multifunction network device.

36. (Original) A method according to Claim 35, wherein a version identification of the designated function module is provided in the instruction from the one multifunction network device to the component repository module.

37. (Original) A method according to Claim 1, wherein the reconfiguration event is a trigger set by the one multifunction network device based on a determination by the one multifunction network device that there is a need for an increased useable capacity of the storage memory and of the program memory in the one multifunction network device.

38. (Original) A method according to Claim 37, wherein the reconfiguration command is sent internally within the one multifunction network device which is reconfigured in accordance with the reconfiguration command by deleting all of the function modules except one designated function module from the storage memory and from the program memory.

39. (Original) A method according to Claim 38, wherein the deleted function modules are sent from the one multifunction network device to a component

repository on the network, and wherein the deleted modules are subsequently retrieved by the one multifunction network device from the component repository and added to the storage memory and to the program memory.

40. to 43. (Cancelled)

44. (Previously Presented) A method according to Claim 1, wherein the one multifunction network device is reconfigured in accordance with the reconfiguration command by prohibiting the use of program memory for at least one of the function modules.

45. (Previously Presented) A method according to Claim 1, wherein the one multifunction network device is reconfigured in accordance with the reconfiguration command by prohibiting the use of program memory for all of the function modules except a designated function module.

46. to 52. (Cancelled)

53. (Currently Amended) A method performed in an information processing apparatus which includes a network interface for connection to a network, wherein the information processing apparatus includes a storage unit for storing a plurality of function modules and is ~~capable of communicating~~ constructed to communicate over the

network interface with a plurality of multifunction network devices on the network, wherein each multifunction network device has ~~an image processing apparatus with scanning and printing capabilities controlled by function modules~~ for controlling scanning and printing capabilities of the multifunction network device as well as hardware resources used by the function modules to perform the scanning and printing capabilities, said method comprising the steps of:

detecting a reconfiguration event from at least one of the plurality of multifunction network devices, wherein the reconfiguration event is triggered ~~internally of said one multifunction device~~ by an increase or a decrease in demand for hardware resources of said one multifunction network device, ~~and wherein said reconfiguration event is detected over the network;~~

first sending a deletion command over the network for instructing the deletion of one of the function modules to ~~the~~ said one multifunction network device corresponding to ~~which sends~~ the reconfiguration event, in case that the reconfiguration event detected by the detecting step is the event indicating a need to delete a specific function module in ~~the~~ said one multifunction network device detected in response to the increase of demand for the hardware resources; and

second sending a requested function module stored in the storage unit over the network to ~~the~~ said one multifunction network device ~~which sends~~ corresponding to the reconfiguration event, in case that the reconfiguration event detected by the detecting step is the event indicating ~~to a~~ request for a specific function module detected in response to the decrease of demand for the hardware resources, followed by an execution of the

retrieved function module by said one multifunction network device so as to control a scanning or printing capability using the hardware resources.

54. (Currently Amended) A method for controlling a multifunction network device, wherein the multifunction network device includes a network interface for communication on the network, ~~each said multifunction network device~~ further having ~~an image processing apparatus with scanning and printing capabilities controlled by function modules~~ for controlling scanning and printing capabilities of said multifunction network device, and ~~each said multifunction network device~~ further having a plurality of hardware resources including a storage memory for storing a plurality of function modules which includes the function modules for controlling scanning and printing, a program memory to be used by the function modules, and a processor for executing the function modules, said method comprising the steps of:

execution of the plurality of function modules by the multifunction network device using the hardware resources so as to control the scanning and printing capabilities;

determining whether the hardware resources need to be reallocated based on a status of use of the hardware resources by the plurality of function modules;

first reconfiguring by deleting at least one of the plurality of function modules and sending the deleted function module over the network so as to secure the hardware resources in ~~the said multifunction network devices~~ device, wherein the deleted function module is sent over the network to an information processing apparatus on the

network, responsive to a case when the determining step determines that the hardware resources need to be reallocated; and

second reconfiguring ~~the said~~ multifunction network ~~devices~~ device by retrieving the deleted function module from the information processing apparatus over the network in response to a status of use of the hardware resources after the first reconfiguring step, and executing the retrieved function module by said multifunction network device so as to control a scanning or printing capability using the hardware resources.

55. (Currently Amended) An information processing apparatus ~~which includes comprising:~~

a network interface for connection to a network, ~~a storage unit for storing a plurality of function modules and which is capable of~~ for communicating over the network with a plurality of multifunction network devices, wherein each multifunction network device has an image processing apparatus with printing and scanning capabilities ~~controlled by function modules~~ for controlling scanning and printing capabilities of the multifunction network device as well as hardware resources used by the function modules to perform the scanning and printing capabilities; ~~comprising:~~

a storage unit for storing a plurality of function modules;

a detector which detects a reconfiguration event from at least one of the plurality of multifunction network devices based on a status of use of hardware resources in said one ~~of the plurality of multifunction network devices~~ device, wherein the reconfiguration event is triggered ~~internally of said one multifunction network device~~ by an

increase or a decrease in demand for hardware resources of said one multifunction network device, and wherein said detector detects the reconfiguration event over the network;

instruction means for sending a deletion command over the network for instructing the deletion of one of the function modules to ~~the~~ said one multifunction network device ~~which sends corresponding to~~ the reconfiguration event, in case that the detected reconfiguration event ~~detected~~ is the event indicating a need to delete a specific function module in ~~the~~ said one multifunction network device detected in response to the increase of demand for the hardware resources; and

sending means for sending a requested function module stored in the storage unit over the network to ~~the~~ said one multifunction network device ~~which sends the corresponding to the reconfiguration event~~, in case that the detected reconfiguration event is the event indicating ~~to a~~ request for a specific function module detected in response to the decrease of demand for the hardware resources, followed by execution of the retrieved function module by said one multifunction network device so as to control a scanning or printing capability using the hardware resources.

56. (Currently Amended) An apparatus for controlling a multifunction network device, wherein the multifunction network device includes a network interface for communication on the network, ~~each~~ said multifunction network device further having ~~an image processing apparatus with scanning and printing capabilities controlled by function modules~~ for controlling scanning and printing capabilities of said multifunction network device, and ~~each~~ said multifunction network device further having a plurality of hardware

resources including a storage memory for storing a plurality of function modules which includes the function modules for controlling scanning and printing, a program memory to be used by the function modules, and a processor for executing the function modules using the hardware resources so as to control the scanning and printing capabilities, said apparatus comprising:

determining means for determining whether the hardware resources need to be reallocated based on a status of use of the hardware resources by the plurality of function modules;

first reconfiguring means for deleting at least one of the plurality of function modules and sending the deleted function module over the network so as to secure the hardware resources in ~~the~~ said multifunction network ~~devices~~ device, wherein the deleted function module is sent over the network to an information processing apparatus on the network, responsive to a case when the determining means determines that the hardware resources need to be reallocated; and

second reconfiguring means for reconfiguring the multifunction network ~~devices~~ device by retrieving the deleted function module from the information processing apparatus over the network in response to a status of use of the hardware resources, and for executing the retrieved function module by said multifunction network device so as to control a scanning or printing capability using the hardware resources.

57. (Currently Amended) A computer-readable memory medium having computer-executable process steps stored thereon for controlling an information processing



apparatus which includes a network interface for connection to a network, wherein the information processing apparatus includes a storage unit for storing a plurality of function modules and is ~~capable of communicating~~ constructed to communicate over the network interface with a plurality of multifunction network devices on the network, wherein each multifunction network device has ~~an image processing apparatus with scanning and printing capabilities controlled by function modules~~ for controlling scanning and printing capabilities of the multifunction network device as well as hardware resources used by the function modules to perform the scanning and printing capabilities, wherein said process steps comprise:

a detecting step to detect a reconfiguration event from at least one of the plurality of multifunction network devices, wherein the reconfiguration event is triggered ~~internally of said one multifunction network device~~ by an increase or a decrease in demand for hardware resources of said one multifunction network device; ~~and wherein said reconfiguration event is detected over the network;~~

a first sending step to send a deletion command over the network for instructing the deletion of one of the function modules to ~~the~~ said one multifunction network device ~~which sends~~ corresponding to the reconfiguration event, in case that the reconfiguration event detected by the detecting step is the event indicating a need to delete a specific function module in ~~the~~ said one multifunction network device detected in response to the increase of demand for the hardware resources; and

a second sending step to send a requested function module stored in the storage unit over the network to ~~the~~ said one multifunction network device ~~which sends~~

corresponding to the reconfiguration event, in case that the reconfiguration event detected by the detecting step is the event indicating ~~to a request for a specific function module~~ detected in response to the decrease of demand for the hardware resources, followed by an execution of the retrieved function module by said one multifunction network device so as to control a scanning or printing capability using the hardware resources.

58. (Currently Amended) A computer-readable memory medium having computer-executable process steps stored thereon for controlling a multifunction network device, wherein the multifunction network device includes a network interface for communication on the network, and wherein the multifunction network device has ~~an image processing apparatus with scanning and printing capabilities controlled by function modules~~ for controlling scanning and printing capabilities of said multifunction network device, and further has a plurality of hardware resources including a storage memory for storing a plurality of function modules which includes the function modules for controlling scanning and printing, a program memory to be used by the function modules, and a processor for executing the function modules, wherein said process steps comprise:

an executing step to execute the plurality of function modules by the multifunction network device using the hardware resources so as to control the scanning and printing capabilities;

a determining step to determine whether the hardware resources need to be reallocated based on a status of use of the hardware resources by the plurality of function modules;

a first reconfiguring step to reconfigure by deleting at least one of the plurality of function modules and sending the deleted function module over the network so as to secure the hardware resources in ~~the said~~ multifunction network ~~devices~~ device, wherein the deleted function module is sent over the network to an information processing apparatus on the network, responsive to a case when the determining step determines that the hardware resources need to be reallocated; and

a second reconfiguring step to reconfigure the said multifunction network devices ~~device~~ by retrieving the deleted function module from the information processing apparatus over the network in response to a status of use of the hardware resources after the first reconfiguring step, and to execute the retrieved function module by said multifunction network device so as to control a scanning or printing capability using the hardware resources.